DIP #554

What is this antibiotic used for? (Extremely HY for Step 1-3)

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Welcome to Episode 554 of the Divine Intervention Podcasts.

Into these podcasts.

- I'm going to be addressing a topic that's pretty **high yield** for all the **USMLE** exams.
- **Step One**, **Step 2**, **Step 3**, **Level One**, **Level 2**, **Level 3**.
- It's kind of a hard topic to prepare for and this is one of those podcasts.
- I will encourage you to listen to it over and over again.
- You're going to get numerous questions right from this.
- What's this mysterious topic I want to discuss?
- This mysterious topic is: **What is this antibiotic used for?**

- I'm just going to focus primarily on **antibacterials** because that's what they're used for.
- So I'm not going to spend time talking about **mechanism of action** or anything like that.
- I'm just going to talk about: "Hey, this antibiotic, what do they use it for on a **USMLE** exam?"
- So this is a quick and dirty podcast, but it's really going to help you turn on your exams.
- So let's just jump right into it, OK?

Penicillin

- **Number one**, **penicillin**. What are we going to use **penicillin** for on the **USMLE** as well?
- You can use it for **syphilis**.
- That's a very, very big one.

- And also, if you think of a person having like draining **sulfur granules** or whatever.
- Like **cervicofacial infections**, **actinomyces**, really high.
- That's also straight up **penicillin** on the **USMLE** exams.

- And then remember, for most cases of **streptococcal pharyngitis**, you're also going to be using **penicillin** for that as well.

- Don't get me wrong, are there other situations where you can use **penicillin**? Yes.
- But these are the main ones.

- Another one can maybe throw in there is **rheumatic fever**.
- That's a big indication for **penicillin** on the exam.

Amino Penicillins – Amoxicillin, Ampicillin

- Now, let's move on to the **amino penicillins**, right?
- So the big ones here are **amoxicillin** and **ampicillin**.

- What's the big thing to know about **amoxicillin**?
- **Amoxicillin**, we use it to treat **acute otitis media**.
- So when a person has an **ear infection**, red bulging **tympanic membrane**, you give **amoxicillin**.
- If **amoxicillin** doesn't work, go ahead and slap some **clavulanic acid** on that.
- So **amoxicillin plus clavulanic acid** — that's **Augmentin**.

- What's the big thing to know about **ampicillin**?
- Don't forget **ampicillin** for **Listeria**.
- It's the drug of choice for **Listeria**.

- So usually you're going to slot in some **ampicillin** when you're dealing with **bacterial meningitis**, and you want to do **empiric treatment** in a person that's over 50 or neonate.
- You gotta slap some **ampicillin** on there because it covers **Listeria**.

- And then don't forget that you can also use **amoxicillin**, **ampicillin** for **Group B Strep prophylaxis**.
- You can even throw in **penicillin** actually for that.
- So **Group B Strep prophylaxis**, when a woman is **intrapartum**, you can certainly use it for those purposes.

- Now, there are other situations where you can use **amoxicillin** or **ampicillin**.
- So like, for example, in many **GI infections**, you can do **ampicillin**, **gentamicin**, **metronidazole**.

- And also, you can also use **amoxicillin** if you're worried about **Lyme disease** in a high-risk population or like a **pregnant woman**, for example.
- Again, I'll say that those are many of the classic situations where we use **ampicillin** or **amoxicillin**.

- Maybe one other **ampicillin** indication to throw in there is if a person has **chorioamnionitis** — you can treat it up with **ampicillin** and **gentamicin**.

- And then remember, **endometritis**, which is an analogous infection — that's a **uterine infection**, versus **chorioamnionitis**, which is an **amniotic fluid infection**.
- For **endometritis**, you can use **clindamycin** and **gentamicin**.
- Many people confuse those treatments.
- Just going to kind of throw that out there.

Anti Staphylococcal Penicillins — Dicloxacillin, Oxacillin, Nafcillin

- And then if we talk about these other kinds of **penicillins** like **dicloxacillin** or **oxacillin** or **nafcillin**.
- Where do you see them used?
- Those are straightforward.
- They're pretty much used for **mastitis**.

- So again, these things I'm saying—there are many other uses for these **antibiotics** that you may have seen in some rare instance.
- I'm just trying to give you the quick and dirty like, "Hey, if you think of this antibiotic, what is like the first thing you think about on your exams?"
- So **cloxacillin**, **dicloxacillin**, **oxacillin**, **nafcillin**, they're going to be used primarily for **mastitis**.

- You're going to see a woman that recently started **breastfeeding**, has a warm tender **breast**, may have like a mild **fever**.
- Think of **mastitis**.
- Again, you're going to use those **antibiotics** for those.

Zosyn (Piperacillin-Tazobactam)

- And again, one thing I'm just going to say is that many people always ask me:
- "Divine, when should I ever pick **piperacillin-tazobactam** as an answer on my exams?"
- My answer is going to be: **Never**.
- Don't pick it on an **NBME** exam. Don't do it.
- If not, you're going to be picking very likely the wrong answer.

- **Zosyn** works extremely well.
- It's just that the **USMLEs** have a huge issue with it.
- So please just **don't do it**.
- Don't do it.
- Simple as that.

Beta-lactam/Beta-lactamase Inhibitor Combinations

- And so again, that **beta-lactam/beta-lactamase** inhibitor combination of **amoxicillin-clavulanic acid**, remember I said it's second line for **acute otitis media**.

- People ask me, "**Tazobactam**?" They pretty much never want you selecting that.

- And **ampicillin-sulbactam** is another **beta-lactam/beta-lactamase inhibitor** combination.
- And typically, the one situation, the classic situation, you're going to see that used in actually on the **USMLEs** is when you're dealing with a person potentially having some very serious **throat infection**.
- So say for example, a person has **epiglottitis**, you can use it for that purpose.
- You can absolutely use it for that purpose.
- And also, if a person potentially has like an infection of the **mastoid air cells** — **acute mastoiditis** — you can also certainly use **ampicillin-sulbactam**.
- But again, it's really tested rarely.

- Most times, they like **amoxicillin-clavulanic acid** for second-line for **acute otitis media**.

- Please, again, I'm begging you. I've never seen **Zosyn** be right on any exam ever.
- So just **FYI**.
- I'm pretty sure I've prescribed it before.
- But again, just not on exams.
- It won't be smart.

Cephalosporins — 1st & 3rd Generation

- Alright, so now let's go to the **cephalosporins**, right?
- So the first gen **cephalosporins**—again, what are the big ones here?
- Well, the big ones here—don't forget your **cephalexin** and **cefazolin**.

- **Cefazolin**, the big thing to know about it is: **surgery, surgery, surgery**.
- Right before you do **surgery** on a person, before you slice them open, you should give them ancef.
- I feel like ancef (**cefazolin)** is the only **antibiotic surgeons** know—I'm just kidding.
- But **cefazolin**, **cefazolin**, **cefazolin**—OK?

- And then **cephalexin** is another big one.
- So what do they really like **cephalexin** for a lot?
- They like **cephalexin** because you can use it for a bunch of stuff.
- You can use it especially for **skin and soft tissue infections**.
- So like **cellulitis**—oh, **cephalexin** is great.
- **Cephalexin** is amazing for that purpose.

- Believe it or not, you can actually also use **cephalexin** for **UTIs** in **pregnant women**.
- It actually works pretty, pretty great for that purpose.
- So that's something you want to keep at the back of your mind.

- Now, the other generations of **cephalosporins**, like the **second generation**, they almost never test it.
- So like the **cefuroxime**, they don't really test it.

Cephalosporins — 3rd Generation

- But let's go to the **3rd generation**.
- **3rd generation**, really, really **high yield**, right?
- That's where you have your **ceftriaxone**, and that's where you have your **ceftazidime**.

- Now **ceftazidime**, the only thing about **ceftazidime** is, it's a **3rd generation**. That's it.

- But **ceftriaxone** is used for a **ton of stuff**.

- You can use **ceftriaxone** to treat **spontaneous bacterial peritonitis**.
- You can use **ceftriaxone** or a close cousin of it called **cefotaxime**.
- You can also use **cefotaxime** for that purpose.
- And then **cefotaxime**, by the way, is also a **3rd generation cephalosporin**.

- You can also use **ceftriaxone** for many **GI infections**.
- It's amazing, amazing, amazing for **GI infections**, especially when combining with **metronidazole**.

- Another use for **ceftriaxone** is when you're trying to cover **Neisseria species**.
- So for example, if you're trying to cover **Neisseria meningitidis**, you're trying to cover **Neisseria gonorrhoeae**, use **ceftriaxone**, right?

- And remember, **empiric treatment of meningitis** in a person over age 50 — you're going to use **ceftriaxone plus vancomycin plus ampicillin**.
- And also, we tend to use that combination as well when we're talking about **neonates**, although for **neonates**, we swap out the **ceftriaxone** and use **cefotaxime** instead.

- Again, don't forget, **cefotaxime** is a **3rd generation cephalosporin**.
- The only times you see them used on exams are when you're doing **pediatric situations**, because **ceftriaxone** can cause intrahepatic cholestasis because it can chelate calcium and can cause stasis of bile.

- But **cefotaxime** — they also tend to just throw it every now and then for **SBP** — **spontaneous bacterial peritonitis**.
- But I just like to think of it as like the **close cousin** of **ceftriaxone**.

- And again, you can also use **ceftriaxone** for **community-acquired pneumonia**, especially when the person is going to be an **inpatient individual** or a person that's **inpatient**.
- You should probably, if you suspect **community-acquired pneumonia**, use **ceftriaxone**.

4th Generation Cephalosporins

- Now, **4th generation**, right? **Cefepime**
- Cefepime covers **pseudomonas**
- Think of it as something used when a person has **febrile neutropenia**.
- Whenever a person has **febrile neutropenia**, you are always worried about **gram-negatives**.
- Don't get me wrong, they can also have **gram-positive** issues, but **gram-negatives** are huge issues.
- Especially, you want to cover **Pseudomonas** in those circumstances.
- So you want to use **cefepime** for those circumstances.

- Or what's the **3rd generation cephalosporin** that covers **Pseudomonas**?
- **Ceftazidime**, **ceftazidime**.

5th Generation Cephalosporins (Low Yield)

- Now the **5th generation cephalosporin**, we're not going to talk about it.
- I think it's called **ceftaroline**.
- Super **low yield**.
- I'm not going to talk about it.

Carbapenems

- Now let's go to the **carbapenems**, right?
- Your **carbapenems** are your things like **imipenem**, **meropenem**, **ertapenem**, **doripenem**.
- So what are you going to use these things for? **ESBL** — **Extended Spectrum Beta-Lactamase**.

- When they give you a question and they tell you that they did some **culture** or **gram stain**, and they get **extended-spectrum beta-lactamase**, what's the rationale for your test? A **carbapenem**.
- If you're taking a **carbapenem**, you should probably be in the **ICU**.
- You're taking a **carbapenem**, that person is in **serious trouble**.
- That person is literally in **serious trouble**.
- Alright, so that's it.
- **Extended-spectrum beta-lactamase organisms** — go ahead and use your **carbapenems** for those.

Vancomycin

- Now, **vancomycin**, **vancomycin**, **vancomycin**.
- What do you use **vancomycin** for?
- Well, remember, you can use **oral vancomycin** for **C. diff**.
- **Post-antibiotic watery or bloody diarrhea** — **C. diff**.
- Another thing — you can also use **vancomycin** on your exams for **MRSA infections**.
- For **MRSA infections**, you can say — for what? For **MRSA infections**.

- And remember — what are the **antibiotics** we've talked about that cover **MSSA** — **Methicillin-sensitive Staph aureus** — like we see in **mastitis**?
- Hmm. I wonder what those were?
- **Oxacillin**, **dicloxacillin**, **nafcillin**, right?
- Again, keep those in mind.
- I'm trying to do these like mini "go back and review" of what we've talked about already in just a slightly different way.

Fosfomycin & Fidaxomicin

- Now there's this kind of weird **antibiotic** called **fosfomycin**, right?
- So **fosfomycin**, actually, we use it mostly for **UTIs**.
- It's a **UTI drug**.
- It's one of these weird **antibiotics** you see just kind of shows up out of the blue on your exams.

- You're like, "Wait, what? Where did that come from?"
- And don't worry about the **mechanism of action**.
- It does some stuff involving **phosphoenolpyruvate synthase**.
- I'm not going to talk about that — super low yield for your test.
- But again, **fosfomycin** — **for UTIs.**

- And I guess since we're kind of talking about **C. diff**, remember you can also use another **antibiotic** called **fidaxomicin**.
- **Fidaxomicin** for **C. diff**.
- Actually, it works extremely well for **C. diff**.

Macrolides — Azithromycin, Clarithromycin, Erythromycin

- Now let's jump into the **macrolides**, right?
- So your things like **erythromycin**, **clarithromycin**, **azithromycin**.

- So **clarithromycin**, where do they like to use **clarithromycin** on the **USMLEs**?
- They love **clarithromycin** for **H. pylori**.
- Remember: **clarithromycin**, **amoxicillin**, and a **PPI** — boom.
- You can use that as **triple therapy** for **H. pylori**.
- Although you can use any other **macrolide** you want.
- But I don't know — they just like **clarithromycin** for **H. pylori**.
- I just thought I'd throw that out there.

- Now remember, you can also use **erythromycin** as more like a second-line agent for the management of what in diabetics?
- **Gastroparesis**, because it's a **motilin receptor agonist**.

- Now what if you see a person with a deep **cough** and they **pass out** after they cough?
- That sounds an awful lot like **pertussis** — **whooping cough**.
- We treat that with a **macrolide**.

- What if you see a young person that has been feeling crappy for a few days, low-grade **fever**, barely coughing up anything?
- They're still able to go to work — sounds like **walking pneumonia**.
- We also use **macrolides** for that purpose.

- What if you see a person that was exposed to **bad water supplies**, has **interstitial pneumonia**, has **hyponatremia**?
- Sounds like **Legionnaires' disease** by **Legionella**.
- We treat **Legionella** with **macrolides**.
- So those are the big, big, big, big, big uses of **macrolides**.

- And by the way, you can also just use a straight **macrolide**, especially **azithromycin**, for **community-acquired pneumonia**.

- Now one thing I want to say about **azithromycin** is that if a person has a **COPD exacerbation**,
- An **acute exacerbation**, and they kind of have like sputum — you're like,
- "Man, does this person have an **infection** going on as well?"
- Go ahead and slap some **azithromycin** on those folks.

- And don't forget that your **macrolides** — they can also cover **Mycobacterium marinum**, right?
- **Mycobacterium marinum**, **skin and soft tissue infection** in a person that works at **SeaWorld** or in an **aquarium** or a **fish tank** or something like that.

Clindamycin

- Alright, so let's jump to **clindamycin**.
- What do you use **clindamycin** for?
- Whenever a person has **necrotizing fasciitis**, **clindamycin** should be part of the drug regimen.
- Basically, if you have any **infection** where it's **toxins** that are messing up your life, you should use **clindamycin**.
- Why? Because it's a **50S inhibitor**, **protein synthesis inhibitor**.
- **Toxins are proteins**, so it's going to help in that circumstance.

- Also, if you're dealing with **anaerobes** — if you're worried about **anaerobes** — **clindamycin**, right?
- Like a person having a **lung abscess** — **clindamycin** is not a bad idea in those folks.
- Remember, **clindamycin** — that's got a **C. diff association** there.
- OK? **Don't forget**, **clindamycin = C. diff** association.

- What else have I talked about **clindamycin** with?
- Women — 3 days after **C-section**,
- "My lower abdomen hurts. My lower abdomen hurts."
- Sounds a lot like **endometritis**.
- You're going to use what?
- You're going to use **clindamycin** for that.
- Remember, **endometritis** — that's a **uterine infection**.
- Biggest risk factor for that is what?
- Recent **C-section**.
- Give **clindamycin and gentamicin**.

- Again, all these things — you may think that I'm kind of joking.
- I'm just trying to make this kind of a light podcast because I know people **hate antibiotics**.
- And I understand — learning all this stuff is **not fun**.
- But hey, you've got to know it.

Chloramphenicol

- Now, **chloramphenicol** is another **antibiotic**.
- You should maybe not pick this for actually treating anything on your exams.
- But remember that this thing causes **Gray Baby Syndrome**.
- It causes **Gray Baby Syndrome** and causes **aplastic anemia**.

- So they test it more for the **side effects** than the actual use.
- Because I would hope if you're taking a **USMLE** exam, you're not using **chloramphenicol** for stuff.

Linezolid

- Now another classic **antibiotic** — **linezolid**, **linezolid**, **linezolid**.
- Remember **linezolid** — what are some big things about **linezolid**?
- **VRE** — for **vancomycin-resistant Enterococcus** infections.
- So **linezolid** — **linezolid**, **linezolid**.
- It's a **50S inhibitor**.
- So use **linezolid**, and **linezolid** also covers **MRSA**.
- That's something you got to know about **linezolid**.
- Don't mess around with that stuff on your exams.

- Now one thing I want to say about **linezolid** that's kind of special is that it also happens to be a **monoamine oxidase inhibitor** (**MAOI**).
- So don't be surprised if a person has a **hypertensive crisis** on Linezolid after they just consumed some **pizza** or **cheese**.
- What am I referring to there?
- **Tyramine effect**.

- Or you see a person that has **depression**.
- Ooh. They take an **SSRI**.
- Ooh. Then they start taking **linezolid** because they have some kind of heart infection like **endocarditis** or whatever.
- You have to cover **VRE**, you have to cover **MRSA**, for whatever bizarre reason.
- And then boom — they start having **clonus** and **hyperreflexia**.
- What does that sound like, folks?
- **Serotonin syndrome**, exactly.
- **Serotonin syndrome** can be caused by **linezolid**.
- Keep that **drug interaction** in mind.

Aminoglycosides — Gentamicin, Tobramycin, Amikacin

- Now let's talk about our **aminoglycosides**, right?
- **Gentamicin**, **tobramycin**, **amikacin** — those are your **aminoglycosides**.
- Remember, those things can touch your **ears**, just like **vancomycin**.
- That combination of **nephrotoxicity** and **neurotoxicity** — we see that with what?
- We see that with your **vancomycin** and **aminoglycosides**.

- Now **aminoglycosides** — don't forget — they're very, very good for **UTIs**, especially **pyelonephritis**.
- They're very good for those situations.

- And remember, they cover **gram-negatives** amazingly well.
- They cover **gram-negatives** amazingly well.

- What else have we talked about with **gentamicin** today in the **OB-GYN** world?
- Hmm.
- **Endometritis** — **clindamycin** and **gentamicin**.

- **Chorioamnionitis** — **ampicillin** and **gentamicin**.

- Don’t forget your **aminoglycosides** for those circumstances.

- And remember, you can also use **gentamicin** for **GI infections** when you combine it with **ampicillin** and **metronidazole**.

Tetracyclines — Doxycycline, Minocycline, Tigecycline

- Now, how about your **tetracyclines**?
- They all end in **-cycline**, right?
- **Minocycline**, **doxycycline**, **tigecycline**.
- **Tigecycline** — they pretty much almost never test it.
- The only claim to fame of **tigecycline** is that it can cover **MRSA**.

✅ **Classic Uses of Tetracyclines:**

- **Rocky Mountain Spotted Fever**
  - ✓ Even if you're **pregnant** — if you don't get the **tetracycline**, you're probably going to **die**,
  - ✓ So we use **tetracyclines** for **Rocky Mountain Spotted Fever**.

- **Chlamydia infections**
  - ✓ In fact, they're **preferred** these days over **macrolides** due to less **treatment resistance**.

- **Pelvic Inflammatory Disease (PID)**
  - ✓ You can throw in some **doxycycline** for that — among other things.

- **Malaria prophylaxis**
  - ✓ Believe it or not, there are some **NBME** questions — people often get this wrong.
  - ✓ You're like, "**Doxycycline** for **malaria prophylaxis**?"
  - ✓ Yeah — you can use it for **malaria prophylaxis**.

- **Acne**
  - ✓ We use these **tetracyclines** for **acne**.
  - ✓ They're actually quite good for **acne**.

- And don't forget your **tetracyclines** — **photosensitivity** is a big problem with those.
- In fact, there's a mnemonic I remember from years ago for the drugs that cause **photosensitivity**:

"SAT for a photo"

- The **S** stands for **Sulfonamides**
- The **A** stands for **Amiodarone**
- The **T** stands for **Tetracyclines**

- Remember, you can also use Tetracyclines as part of quadruple therapy for H Pylori.

Fluoroquinolones

- Next group I'll talk about — the **fluoroquinolones**.
- What are **fluoroquinolones** for?
- You can use them for **UTIs** — occasionally they kind of pop up in that regard on the **USMLE** exams.

- You can use them for **UTIs**
- Also you can use them for **SBP prophylaxis** — **spontaneous bacterial peritonitis prophylaxis**.
- **Fluoroquinolones** are actually quite good for that purpose.

- Again, the **USMLE** these days — they've started **de-emphasizing fluoroquinolones** quite a bit.
- Why? Because they just have a bunch of problems.

- They **prolong your QT interval**.
- They can **rupture your Achilles tendon**.
- They cause a bunch of problems.

- One thing I want to say is if you have just **many of these infectious diarrheas**,
- They're actually covered quite well by **fluoroquinolones**.

Rifampin (Rifampicin)

- How about **rifampin**, **rifampicin**?
- What do you use **rifampin** for on the **USMLEs**?

- You can use **rifampin** for **Mycobacterium marinum**.
- I'm saying that first because it's one of those things people ignore — so I just want to say it first.

- Then it's used for many **TB infections** — right?
- Like, you should know that. I would hope.

- Also, let's say you intubated a person that came in with **nuchal rigidity** and they have **petechiae** and **purpura** on the skin.
- What does that sound like?
- **Meningococcal infection**.
- Close contact? You inhaled the **respiratory secretions**?
- If you don't want to end up on a **bed next to them** in the ICU, you should probably take **rifampin** as **close contact prophylaxis** for **meningococcal infections**.
- Remember, you can also use **ceftriaxone** for that purpose as well.
- But they like **rifampin** quite a bit because they know that **ceftriaxone**, everybody knows you use that for treating **meningococcal infections**.
- So they like to test **rifampin** because it's something people do not pay attention to.

- Also, if you have a **prosthetic valve endocarditis**, **rifampin** is a good **adjunct** — but that's really tested at a pretty **low yield**.

- Let me ask you this — is there another person that may have **meningitis** from a particular bug that you may have been exposed to?
- And they're like, "We should give **rifampin** as **close contact prophylaxis**"?
- Don't forget: **Meningitis** from **Haemophilus influenzae type B**.
- If you've been exposed to a person that has **meningitis** from **H. flu type B** and you're a **close contact**, you need what?
- **Rifampin prophylaxis**.
- So don't forget: **Neisseria Meningitis** and **Haemophilus influenzae type B**.

Metronidazole

- Well, **metronidazole**, **metronidazole** — remember: **protozoal infections**.

✅ **Metronidazole is used for:**

- **Trichomoniasis**
- **Giardia**
- **Entamoeba histolytica** (bloody diarrhea and liver abscess)
- **Bacterial vaginosis**
- **GI infections** — especially because it covers **anaerobes** pretty well.

- **Quadruple therapy: Metronidazole, bismuth, tetracycline, PPI.**

- Also, **back in the day**, we used to use **metronidazole** for **C. diff**.
- Don't do that again on your exams.
- That would be a bad idea.

- Let me also slot in one bonus for **metronidazole** — a **side effect**:
- Remember, it **inhibits aldehyde dehydrogenase**, so it gives you a **disulfiram-like reaction**.

Daptomycin

- On your exams, **daptomycin** — what's it going to be used for?
    - **MRSA**, where you don't see **vanco** as an answer for whatever bizarre reason.
    - Also used for **VRE** — **vancomycin-resistant Enterococcus**.

- What was the other drug we talked about for **VRE** on the **USMLEs**? **Linezolid**, right?
- Remember the **MAOI activity**?
- So remember that **serotonin syndrome** association?
- Remember that **tyramine crisis** association?
- Know those for your test.

TMP-SMX (Trimethoprim-Sulfamethoxazole)

- How about **TMP-SMX** — **trimethoprim-sulfamethoxazole**?

- What's the **number one use** on the **USMLE**?
- **Easy**, **easy**, **easy**, **easy**: **HIV**.
- This is your **PCP treatment and prophylaxis** — right?

- And you can also use it to **prophylax against toxoplasmosis**.
- But you don't use it to **treat** toxoplasmosis.
- **Toxoplasmosis** is treated with **pyrimethamine and sulfadiazine**.
- So we **prophylax against toxo** with **TMP-SMX**,
- But we **treat** toxoplasmosis infections with **pyrimethamine and sulfadiazine**.

- **TMP-SMX** is also good for **skin and soft tissue infections**, usually from **MRSA**.
- It does cover **MRSA**.

- It's also useful for **UTIs**.
- You can even use it for **pyelonephritis**.

- One last weird thing I want to talk about with **Bactrim** — **TMP-SMX**:
- Don't forget that **Bactrim** can cause **neutropenia**.

Nitrofurantoin

- How about **nitrofurantoin**?
- **Nitrofurantoin**, we pretty much use it in **women** that have **cystitis**, even **pregnant women**.
- Do **not use it** for any other purpose on your exams.
- It's just for **cystitis in women**.
- Do **not** use it for any other kind of **UTI**, and **never** use it in **men**.
- You'll be picking the **wrong answer** on your exams.

Dapsone

- And then, don't forget the other drugs used for **TB**, right?
- I talked about it already, but don't forget — **RIPE Therapy**

- What do we use **dapsone** for on the **USMLE**?
- **Dapsone** — kind of low yield, but kind of high yield too.

- **Dapsone** can be used for **PCP prophylaxis**.
- What?
- Yeah — you use it for **PCP prophylaxis** if you can't tolerate **TMP-SMX**.
- You absolutely can use it for that purpose.
- So you should **certainly** know that for your exams.

- We also use **dapsone** as part of the treatment regimen for **leprosy**, caused by **Mycobacterium leprae**.
- And don't forget that you can also use **dapsone** to treat **dermatitis herpetiformis**
  - That's the itchy rash in a person with **malabsorption** like **celiac disease**.
- So you can use **dapsone** for **dermatitis herpetiformis** on your exams.
- Please keep that at the back of your mind.

Quick Bug-Drug Summary (Wrap-up)

Pseudomonas Coverage

- Fluoroquinolones
- Aminoglycosides
- Piperacillin-tazobactam (never pick on exams)
- Ceftazidime (3rd gen cephalosporin)
- Cefepime (4th gen cephalosporin)
- Carbapenems

MSSA Coverage

- Dicloxacillin, oxacillin, nafcillin
- 1st gen cephalosporins like cephalexin

MRSA Coverage

- Clindamycin
- TMP-SMX
- Vancomycin
- Linezolid
- Daptomycin
- Tetracyclines

VRE Coverage

- Linezolid
- Daptomycin
- (Also tigecycline, low yield)

Anaerobe Coverage

- Clindamycin
- Metronidazole
- Carbapenems

High-Yield Clinical Combos

- **Triple therapy for H. pylori:**
  - Macrolide + Amoxicillin + PPI

- **Quadruple therapy for H. pylori:**
  - Metronidazole + Bismuth + Tetracycline + PPI

- **Endometritis (uterine infection):**
  - Clindamycin + Gentamicin

- **Chorioamnionitis (amniotic fluid infection):**
  - Ampicillin + Gentamicin